AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1-23. (cancelled)

24. (previously presented) An oxygen conducting membrane, comprising:

a mixed conducting dense membrane of multimetal oxide, one surface of which is covered with dispersed particles based on magnesium oxide or noble metals,

wherein the mixed conducting dense membrane is a layer comprising a multimetal oxide compound having a formula:

$Ba_x Sr_{1-x} Co_{1-y} Fe_y O_{3-z}$

where $0 \leq x \leq 1$,

$0 \leq y \leq 1$, and

z is a number which renders a charge of the compound neutral and which defines oxygen deficiency, and

the particles based on magnesium oxide or noble metals represent from 0.01 to 0.1% by weight of the dense membrane.

25. (previously presented) The membrane according to claim 24, in which the particles based on magnesium oxide and/or noble metals have a diameter of between 5 and 3000 nm.

26. (previously presented) The membrane according to claim 24, in which the mixed conducting dense membrane of multimetal oxide has a perovskite structure.

27-30. (canceled)

31. (previously presented) The membrane according to claim 24, in which the multimetal oxide comprises $Ba_{0.5}$ $Sr_{0.5}$ $Co_{0.8}$ $Fe_{0.2}$ O_{3-z}.

32. (previously presented) The membrane according to claim 24, in which the mixed conducting dense membrane of multimetal oxide has a thickness of between 0.5 and 10 mm.

33. (canceled)

34. (previously presented) The membrane according to claim 24, in which the particles are based on magnesium oxide.

35. (previously presented)The membrane according to claim 34, in which the particles based on magnesium oxide are doped using vanadium.

36. (previously presented) The membrane according to claim 24, in which the particles are particles of noble metals or alloys thereof.

37. (previously presented) The membrane according to claim 24, in which the noble metals are selected from the group consisting of Pd, Pt, Rh, Ag, Au, Ru and Ir.

38. (withdrawn, previously presented) A method for preparing oxygen conducting membranes as defined according to claim 24, comprising:

a) providing the mixed conducting dense membrane;

b) preparing a colloidal suspension based on magnesium oxide in an organic solvent;

c) placing the suspension obtained in contact with the mixed conducting dense membrane; and

d) calcining the membrane obtained.

39. (withdrawn, previously presented) A method for preparing oxygen conducting membranes as defined according to claim 24, comprising the steps consisting in:

a) providing the dense membrane of multimetal oxide; and

b) depositing the particles of noble metals or alloys thereof by means of laser vaporisation.

40. (withdrawn) A membrane reactor comprising an oxidation zone and a reduction zone which are separated by means of an oxygen conducting membrane as defined in claim 24.

41. (withdrawn) The membrane reactor according to claim 40, in which the oxidation zone is in contact with the surface of the membrane coated with dispersed particles based on magnesium oxide or noble metals.

42. (withdrawn, previously presented) A method for oxidising a reactant gas, comprising:

i) providing the membrane reactor according to claim 40;

ii) introducing the reactant gas into the oxidation zone;

iii) introducing the gas containing oxygen into the reduction zone; and

iv) heating the membrane which separates the oxidation and reduction zones to an operating temperature.

43. (withdrawn) The method according to claim 40, in which the reactant gas is a light hydrocarbon which is oxidised into alkene.

44. (withdrawn) The method according to claim 40, in which the light hydrocarbon is ethane which is oxidised into ethylene.

45. (withdrawn) A method for recovering oxygen from a gaseous mixture containing oxygen, in which a membrane reactor according to claim 40 is used.